

**UNITED STATES DEPARTMENT OF COMMERCE****United States Patent and Trademark Office**Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

H0

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/531,163 03/17/00 YANO

H 0039-7632-0X

EXAMINER

IM22/0705.

OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT
4TH FLOOR
1755 JEFFERSON DAVIS HIGHWAY
ARLINGTON VA 22202

DECL. D.

ART UNIT

PAPER NUMBER

1765
DATE MAILED:7
07/05/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

Office Action Summary

Application No.

09/531,163

Applicant(s)

YANO ET AL.

Examiner

DuyVu n Deo

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 40-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claims 40-43 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4.
- 18) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-39 in Paper No. 6 is acknowledged. The traversal is on the ground(s) that no adequate reasons and/or examples have been provided to support a conclusion of patentable distinctness or shown that burden exists in searching all the claims. This is not found persuasive because the Office does provide an example of using the product in another material different process. Applicant has not provided a convincing argument that the alternative use of the product can not be accomplished. Another use of the product is that the composition can be used to polish non-semiconductor device. The Office also shows the burden exists in searching all the claims in which group I and group II are classified in two different class/subclass. Because these inventions are distinct for the reasons given above, would require different searches and entail different patentability determinations, restriction for examination purposes as indicated is proper (MPEP 2111.01 and 2112.02).

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1-4, 7, 11, 12, 16, 20-23, 26, 30, 31, 35, 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Ronay (US 5,876,490).

Art Unit: 1765

Ronay teaches an slurry that is used for CMP containing polymer particles, inorganic particle, and water, wherein the polymer particles has charge different from the charge associated with the inorganic particle so that the polymer particles are highly attracted to the surface of the abrasive particles to form polymer-coated inorganic particles (col. 3, line 40-43; col. 4, line 55-65). This would reads on claimed zeta potential of polymer particles are opposite as that of the inorganic and they are electrostatically bonded to form composite particles.

The polymer particles have acidic groups poly(acrylic acid) (claimed carboxyl group and the anion) for the alumina abrasive or basic groups such as polymers with amino, amide, imide (claimed cation-formable nitrogen containing group and their cation) to coat silica particles. (col. 5, line 25-50). The slurry typically contain acidic oxidant (oxidizing agent) and further contains a dual-valent rare earth or suspension of its colloidal hydroxide, wherein the rare earth ion is in its higher valent form such as Ce^{4+} , Pr^{4+} and Tb^{4+} (claimed polyvalent metal ion) (col. 7, line 5-40; col 65-col. 8, line 24).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13-15, 17-19, 32-34, 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ronay as applied to claims 12 and 31 above and further in review of Hiroto (JP 152673).

Unlike claimed invention, Ronay doesn't describe the mean particle size of the composite particles is not greater than 1 um nor the ratio of the mean particle size of the polymer and the abrasive particles. However, he teaches using abrasive particles size of about 30-200nm and the polymers are in the form of submicron particles wherein the monomer unit can be about 5-200 (col. 6, line 5-31; col. 7, line 42-45). Therefore, it would have been obvious at the time of the invention for one skill in the art to determine the size of the polymers and the particles through routine experimentation with an anticipation of an expected result. Further more, preparing the slurry by using ultrasonic treatment or high-pressure homogenizer of Genus Corp. would be known to one skill in the art. Hiroto teaches using ultrasonic dispersion with stirring to prepare the slurry (ab.)

Ronay also teaches the ratio of the content of the polymer particles and that of the abrasive particles would be about 0.2 which corresponds to the w% of the polymer, 20 w% of the abrasive particles (col. 5, line 21-22). The slurry further comprises a surfactant, which is typically about 0.1-2 w% (col. 8, line 6-21).

6. Claims 5, 6, 8-10, 24, 25, 27-29 rejected under 35 U.S.C. 103(a) as being unpatentable over Ronay as applied to claims 4, 7, 23, and 26 above, and further in view of Hosali et al (US 5,738,800) and Skrovan et al. (US 5,916,819).

Referring to the pH of the slurry, Ronay describes the pH for oxide polishing is in the alkaline pH regime (col. 6, line 32-33). Skrovan teaches that pH of the slurry would be depending on the type of the surface being polished such as oxide polishing having pH greater than 9 and metal polishing having pH of about 4 (col. 5, line 20-25). Furthermore, Hosali shows in col. 3, line 1-35 that the pH of the slurry is to be determined through test run. Therefore, it

Art Unit: 1765

would have been obvious at the time of the invention for one skill in the art to determine the pH of the slurry through routine experimentation depending on the material being polished.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n Deo whose telephone number is 703-305-0515.

DVD

June 25, 2001


BENJAMIN L. UTECH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700